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UNITED STATES DEPARTMENT OF AGRICULTURE | FOREST SERVICE | RO

REPLY TO: 3430 Evaluation

DATE: November 15, 1985

SUBJECT: Annosus Root Disease at Wishon Point Campground, Bass Lake Ranger District (Report No. 85-31)

TO: Forest Supervisor, Sierra National Forest

On October 30th, while participating in a PSW-sponsored workshop on recreation site vegetation management, FPM staff members Detlev Vogler (pathologist) and David Schultz (entomologist) found a large annosus root disease center in Wishon Point Campground. At the request of District Silviculturist Gary Thompson, they agreed to document these findings and to suggest management alternatives for the site. Their report follows.

OBSERVATIONS

Vogler and Schultz found Fomes annosus fruiting bodies in two large ponderosa pine stumps in a 1/5th-acre opening between campsites 231 and 237. There were five ponderosa pine stumps within the clearing, indicating that trees had been dying for at least a decade. Two or three pines at the edge of the opening were declining (based on reduced terminal growth, thinning crowns, and off-color foliage), further evidence that this is an active root disease center. Several ponderosa pines nearby were infected by western dwarf mistletoe (Arceuthobium campylopodum).

Large conifers typical of the surrounding stand are absent from the disease center, but grass is abundant. Gophers are active throughout the center. The District has planted giant sequoia, incense-cedar, ponderosa pine, and black oak in an attempt to reforest the site, but the opening remains sparsely stocked and screening between campsites is poor.

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MANAGEMENT ALTERNATIVES

No Change in Current Management. The disease center will continue to enlarge as pines around the periphery become infected and die; most will succumb to western pine beetle (Dendroctonus brevicomis) attack. Giant sequoia, incense-cedar, and ponderosa pines planted within the center may also succumb to infection; only the black oaks

are immune. Since Fomes annosus has been known to remain active in pine stumps for up to 50 years, it is likely that the disease center will remain poorly stocked and slowly enlarge for several decades. Mistletoe-infected overstory pines around the opening will infect planted pines that survive, reducing their growth and longevity. Both naturally-seeded and planted black oaks will slowly reclaim the site. An abundance of grass and resultant high gopher populations will make successful planting difficult.

Take Advantage of the Opening. Since the conversion to a treeless, sunny opening has already occurred, it may be wise to change the dominant use of the area from camping to other forms of open-space recreation such as ball-playing and frisbee-throwing. The plentiful grass and sparse tree cover would then be a blessing in disguise; in fact, the few remaining trees could be removed to preserve the open setting. This alternative would require little time or money since the insect and disease pests have already done most of the work.

Plant Oaks. Oaks are abundant in the vicinity and are not affected by annosus root disease. Planting native black oaks would be the surest way to revegetate the site and restore a shaded and screened forest setting. To increase tree survival, it would be advisable to involve the public by erecting signs that explain the disease condition and reasons for the plantings, and which encourage them to respect and care for the young trees.

Suppress Annosus Root Disease. To prevent spread via airborne spores into uninfected stands, treat all freshly-cut conifer stumps with borax as soon after cutting as practicable (FSM 2305 and 2331.33, R-5 Suppl. No. 90). A biological evaluation is not required for stump treatment in developed recreation sites (FSM 2331.33), but the District must prepare a Pesticide Use Proposal (FS-2100-2) for approval by the Forest Supervisor.

Treating conifer stumps with borax will prevent new disease centers, but it will not stop the spread of infection outward from existing centers. Restricting center enlargement by removing all susceptible hosts from a buffer strip around disease centers, or eradicating infection within centers by pulling all infected trees, stumps, and root material, are theoretically feasible, but unproven. These treatments would be expensive and might not succeed, since it would be difficult to remove all fungal inoculum from the soil, and undetected infections might occur beyond the edges of the center. The most feasible option for the next several decades is conversion to oaks, as mentioned above.

Treat Dwarf Mistletoe in Ponderosa Pine. Vogler and Schultz did not survey Wishon Point Campground fully, but did see dwarf mistletoe in pines around the margin of the root disease center. These trees pose a threat to uninfected ponderosa pines within the opening. To reduce the threat of spread from the overstory, a mistletoe-free buffer

strip should be created around the opening. The buffer strip must be at least as wide as the height of the highest mistletoe plant in the overstory; this width is sufficient to prevent seed from infected trees reaching the planted pines. Mistletoe treatment options are as follows:

(1) Remove all trees with a dwarf mistletoe rating (DMR) of 5 or 6, as well as those with a DMR of 4 and mistletoe in the upper one-third of the crown.

(2) Prune lower branches of pines with a DMR of 3 or less, or a DMR of 4 and no infection in the upper one-third of the crown. Remove all lower branches at the bole, up to and including the second whorl above the highest visible mistletoe plant. Do not remove more than one-half of a tree's live crown.

(3) Re-treat pruned stands within 2-3 years to remove undetected and latent infections. Dwarf mistletoe usually cannot be reduced effectively without at least two treatments.

Since this alternative deals only with dwarf mistletoe in trees near the opening, any mistletoe beyond the width of the buffer strip will eventually reinvade the buffer and threaten planted pines in the opening. A comprehensive pest evaluation is needed before a full dwarf mistletoe treatment plan can be prepared. At present, the extent and severity of mistletoe at Wishon Point is not known. Furthermore, mistletoe control will not reduce the threat of annosus root disease infecting pines in or near the disease center.

These remarks are meant to document the annosus root disease condition at Wishon Point Campground, and to alert the District to the management problems and opportunities that can result. If you have further questions, please contact Detlev Vogler at (415) 556-6520.

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